Drink. Water Eng. Sci. Discuss.,
https://doi.org/10.5194/dwes-2017-15-AC1, 2017

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Drinking Water
Engineering and Science
Discussions

Interactive comment on "Modeling particle transport and discoloration risk in drinking water distribution networks" *by* Joost van Summeren and Mirjam Blokker

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Received and published: 14 July 2017

Dear Referee,

Thank you for your constructive feedback on our paper.

We checked the results of the TECHNEAU project listed in the book "TECHNEAU: Safe Drinking Water from Source to Tap", IWA Publishing, 2009. We assume your comment refers to the work described in "Models for the calculation of optimized flushing concepts" - S. Richardt, A. Korth and B. Wricke. (If another study was meant, we would appreciate a specific reference.)

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Discussion paper

The work of Richardt et al. involves the development of a model for the calculation of optimized flushing intervals. It considers the deposit growth rate (derived from measured deposits) and the pipe-specific turbidity potential (derived from the maximum daily velocity). The optimized flushing interval prevents the predicted deposit to exceed the maximum deposit potential. According to the authors applying the model to a real-life network resulted in a major decrease in customer complaints.

We would like to point out two aspects of the model: First, it requires deposition information for each pipe in the study area. Second, the analysis is performed for individual pipe segments, which implies it does not consider the transfer of depositions across the network. In case of strong variations in flow conditions –e.g. flow reversals due to anomalous supply conditions– this may pose a challenge to the quality of the model results.

In contrast, implementation of the framework we presented in our paper has the advantage of (i) determining sediment buildup in regions without measurements for each pipe and (ii) considering particulate material transport between different pipes *across* the network.

We agree it is relevant to mention the work of Richardt et al. and suggest to include a reference and consice description in the Introduction section.

Thank you for poining out some minor issues. We suggest the following changes:

1) Replace "appurtance" with "plumbing fixtures (valves, hydrants, sensors, etc.)".

2) Replace "culverts" with "vertical inclinations of pipes". (E.g. when a pipe dives under a road or river).

@1 & 2): In case more approriate terms exists in English, suggestions are appreciated.

3) Correct the line break errors as suggested.

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15, 2017.